

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1-5. (Canceled).

6. (Currently Amended) ~~The method of claim 5~~ A method of performing a glitch check in simulating a circuit, the method comprising the following steps:

determining current maximum and minimum values for an optimization parameter of the circuit;

determining a signal characteristic value for circuit simulation based on the current maximum and minimum optimization parameters, said signal characteristic value being the width of a signal pulse;

determining a current averaged optimization parameter;

calculating a prime criterion parameter based on the current minimum and maximum optimization parameters and the signal characteristic value;

determining whether the prime criterion parameter converges to a prescribed range;

if the prime criterion parameter converges into the prescribed range then parsing measurement results from the circuit simulation;

if the prime criterion parameter does not converge into the prescribed range;

simulating the circuit based on the current optimization parameter;

calculating a new signal characteristic value using the circuit simulation;

determining the results of the circuit simulation based on the new signal characteristic value; and

setting the current optimization parameter to a new optimization parameter in response to the new signal characteristic value,

wherein the width of the signal pulse is measured respectively for simulations based on the current minimum, current maximum and current optimization parameters and wherein the current optimization parameter is set to be the current minimum optimization parameter if both simulations based on the current minimum

and current optimization parameters indicate the same status, either both succeed or both fail, otherwise the current optimization parameter is set to be the current maximum optimization parameter.

7. (Original) The method of claim 6 wherein the succeed status is determined if the simulation result meets a user-prescribed condition and the width of the signal pulse is no less than said user-prescribed condition, and the fail status is determined if the simulation result doesn't meet said user-prescribed condition or the width of the signal pulse is less than said user prescribed condition.

8-9. (Canceled)

10. (Currently Amended) ~~The method of claim 9~~ A method of performing a glitch check in simulating a circuit, the method comprising the following steps:

determining current maximum and minimum values for an optimization parameter of the circuit;

determining a signal characteristic value for circuit simulation based on the current maximum and minimum optimization parameters, said signal characteristic value being the height of a signal pulse;

determining a current averaged optimization parameter;

calculating a prime criterion parameter based on the current minimum and maximum optimization parameters and the signal characteristic value;

determining whether the prime criterion parameter converges to a prescribed range;

if the prime criterion parameter converges into the prescribed range then parsing measurement results from the circuit simulation;

if the prime criterion parameter does not converge into the prescribed range;

simulating the circuit based on the current optimization parameter;

calculating a new signal characteristic value using the circuit simulation;

determining the results of the circuit simulation based on the new signal characteristic value; and

setting the current optimization parameter to a new optimization parameter in response to the new signal characteristic value,

wherein the height of the signal pulse is measured respectively for simulations based on the current minimum, current maximum and current optimization parameters and wherein the current optimization parameter is set to be the current minimum optimization parameter if both simulations based on current minimum and current optimization parameters indicate the same status, either both succeed or both fail, otherwise the current optimization parameter is set to be the current maximum optimization parameter.

11. (Original) The method of claim 10 where the succeed status is determined if the simulation result meets a user-prescribed limit and the height of the signal pulse is not greater than said user-prescribed limit, while the fail status is determined if the simulation result does not meet said user-prescribed limit or the height of the signal pulse is greater than said user-prescribed limit.

12-13. (Canceled)

14. (Currently Amended) ~~The method of claim 13~~ A method of performing a glitch check in simulating a circuit, the method comprising the following steps:

determining current maximum and minimum values for an optimization parameter of the circuit;

determining a signal characteristic value for circuit simulation based on the current maximum and minimum optimization parameters, said signal characteristic value being a slew time of a signal transition;

determining a current averaged optimization parameter;

calculating a prime criterion parameter based on the current minimum and maximum optimization parameters and the signal characteristic value;

determining whether the prime criterion parameter converges to a prescribed range;

if the prime criterion parameter converges into the prescribed range then parsing measurement results from the circuit simulation;

if the prime criterion parameter does not converge into the prescribed range;
simulating the circuit based on the current optimization parameter;
calculating a new signal characteristic value using the circuit simulation;
determining the results of the circuit simulation based on the new signal
characteristic value; and

setting the current optimization parameter to a new optimization parameter in
response to the new signal characteristic value.

wherein for a meta-stability check the slew time of the signal transition is
measured respectively for simulations based on the current minimum, current
maximum and current optimization parameters and wherein the current optimization
parameter is set to be the current minimum optimization parameter if both
simulations based on current minimum and current optimization parameters indicate
the same status, either both succeed or both fail, otherwise the current optimization
parameter is set to be the current maximum optimization parameter.

15. (Original) The method of claim 14 where the succeed status is
determined if the simulation result meets a user-prescribed limit and the slew time of
the signal transition is not greater than said user-prescribed limit, while the fail status
is determined if the simulation result does not meet said user-prescribed limit or the
slew time of the signal transition is greater than said user-prescribed limit.

16. (Previously Presented) A method for performing a glitch check on multiple
nodes of a simulated circuit, the method comprising the following steps:

determining a current optimization parameter from a maximum optimization
parameter and a minimum optimization parameter of the circuit simulation;

calculating a prime criterion parameter based on the maximum and minimum
optimization parameters;

determining whether the prime criterion parameter converges to a prescribed
range;

if the prime criterion parameter converges into the prescribed range, then
saving the current optimization parameter as a setup and hold time for circuit
simulation calculations;

if the prime criterion parameter does not converge into the prescribed range;
simulating the circuit based on the current optimization parameter;
calculating a current prime criterion parameter based on the circuit simulation;
measuring a secondary criterion parameter for all reference nodes;
setting the status of the current simulation to fail if the simulation result does not meet a user-prescribed limit or there is any value of the secondary criterion parameters of all reference nodes greater than the user-prescribed limit; and
setting the status of the current simulation to succeed if the simulation result meets the user-prescribed limit and the values of the secondary criterion parameters of all the reference nodes are not greater than the user-prescribed limit.

17. (Original) The method of claim 16 wherein the prime criterion parameter is a bisection error of the circuit simulation.

18. (Original) The method of claim 16 wherein the process reiterates until the prime criterion parameter converges into the prescribed range.

19. (Original) The method of claim 16 wherein the secondary criterion parameter is the height of a signal pulse.

20. (Original) The method of claim 19 wherein the height of the signal pulse is measured within a specified measurement range centered by a clock transition.

21. (Original) The method of claim 16 wherein the current optimization parameter is set to be the current minimum optimization parameter value when the current optimization parameter and the minimum optimization parameter indicate the same status.

22. (Previously Presented) The method of claim 16 wherein the current optimization parameter is set to be the current maximum optimization parameter value when the current optimization parameter and the minimum optimization parameter do not indicate the same status.

23. (Original) The method of claim 16 wherein for a meta-stability check the secondary criterion parameter is a metastable time.

24. (Original) The method of claim 23 wherein the metastable time is the time that a signal transition stays in a prescribed voltage range.

25. (Previously Presented) The method of claim 24 wherein the metastable time is measured within a specified measure range centered by a clock transition.

26-30. (Canceled)